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APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
09/993,766	11/27/2001	Takahiro Tochioka	740819-705	7593

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EXAMINER	
SHOSHO, CALLIE E	

ART UNIT	PAPER NUMBER
1714	7

DATE MAILED: 05/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Application No.	Applicant(s)	
09/993,766	TOCHIOKA ET AL.	
Examiner	**Art Unit**	
Callie E. Shosho	1714	

Office Action Summary

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 March 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) *8,9 and 13-23* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7 and 10-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a)☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 6
4)☐ Interview Summary (PTO-413) Paper No(s). _____.
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other:

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I, long glass fiber filler reinforced resin material, claims 1-7 and 10-12, in Paper No. 5 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

2. Claims 8-9 and 13-23 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b) as being drawn to a non-elected invention. Election was made **without** traverse in Paper No. 5.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-7 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 11 each recite "(JIS K7210, a temperature of 230 ^{0}C; and a load of 21.18N)". The scope of each of each of the claims is confusing because it is not clear why the above phrase is in parentheses. Is the melt flow rate actually measured by this method? If so, it is

suggested that the above phrase is re-written as "measured according to JIS K7210 at a temperature of 230 ^{0}C and a load of 21.18N".

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-7 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshino (U.S. 5,514,745) in view of Mitsuno et al. (U.S. 5,409,991).

Yoshino discloses long glass fiber filler reinforced resin material for injection molding comprising (i) 5-70% masterbatch comprising 60-90% long glass fiber coated with silane coupling agent, polypropylene matrix resin with melt flow rate measured at 230 ^{0}C and 2.16 kg of, for instance, 200 g/10 min or 300 g/10 min, and acrylic acid or maleic anhydride modified polypropylene and (ii) 30-95% diluting polymer which is ethylene-propylene block copolymer which has melt flow rate of 3-20 g/10 min. The material is used to form rod-shaped, i.e. elliptical, pellets which are 2-50 mm long and comprise the glass fibers in longitudinal direction (col.1, lines 43-49 and 61, col.4, lines 18-19, 29-30, 42-48, and 52-54, col.5, lines 18-26, col.6, lines 39-62, col.6, line 65-col.7, line 3, col.7, lines 37-40, col.8, lines 7 and 18-27, and col.9, lines 10-11).

The difference between Yoshino and the present claimed invention is the requirement in the claims of pentad isotactic index of the polypropylene matrix resin and the propylene component of the ethylene-propylene block copolymer.

Mitsuno et al., which is drawn to thermoplastic propylene resin composition comprising glass fiber, disclose using propylene homopolymer or ethylene-propylene block copolymer wherein the propylene homopolymer and propylene component of the block copolymer each possess pentad isotactic index of 97% or greater. The motivation for using such polymer is to produce composition with high heat resistance, stiffness, and scratch resistance (col.6, lines 30-36).

In light of the motivation for using polypropylene and ethylene-propylene block copolymer with pentad isotactic index as described above, it therefore would have been obvious to one of ordinary skill in the art to use such polypropylene and ethylene-propylene block copolymer in the long glass fiber filled resin material of Yoshino in order to produce material with high heat resistance, stiffness, and scratch resistance, and thereby arrive at the claimed invention.

8. Claims 1, 3-7, and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sobajima et al. (U.S. 5,484,835) in view of Mitsuno et al. (U.S. 5,409,991) and Yoshino (U.S. 5,514,745).

Sobajima et al. disclose long glass fiber filler reinforced resin material for injection molding which comprises 0.06-77% long glass fibers which are treated with silane coupling agent, crystalline propylene polymer modified with acrylic acid or maleic anhydride, and crystalline propylene polymer, i.e. propylene homopolymer, with melt flow rate of greater than 50 g/10 min, preferably greater than 100 g/10 min which is measured according to JIS K7210 at 230 ^{0}C and 2.16 kg (col.1, line 55-col.2, line 3, col.2, lines 34-36 and 46-59, col.3, lines 29-43, col.4, lines 35-40 and 54-56, col.6, line 6, and col.7, lines 43-45).

The difference between Sobajima et al. and the present claimed invention is the requirement in the claims of (a) pentad isotactic index of polypropylene and (b) ethylene-propylene block copolymer.

With respect to difference (a), on the one hand, given that Sobajima et al. disclose crystalline propylene polymer identical to that presently claimed and given that crystalline

polymers are well known to possess high pentad isotactic index, it would have been natural for one of ordinary skill in the art to infer that the propylene polymer intrinsically possesses pentad isotactic index as presently claimed.

On the other hand, Mitsuno et al., which is drawn to thermoplastic propylene composition comprising glass fiber, disclose the use of propylene resin which has pentad isotactic index greater than 97% in order to produce composition with high heat resistance, stiffness, and scratch resistance (col.6, lines 30-36).

In light of the motivation for using propylene polymer with specific pentad isotactic index disclosed by Mitsuno et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such propylene polymer in the long glass fiber reinforced resin material of Sobajima et al. in order to produce material with high heat resistance, stiffness, and scratch resistance, and thereby arrive at the claimed invention.

With respect to difference (b), Sobajima et al. disclose that the composition can contain additional elastomer such as ethylene-propylene block copolymer, however, there is no explicit disclosure of ethylene-propylene block copolymer as presently claimed.

Yoshino, which is drawn to long glass fiber reinforced polypropylene composition, discloses the use of ethylene-propylene block copolymer in order to produce molded article with high impact resistance (col.7, lines 21-24).

Although there is no explicit disclosure of the pentad isotactic index of the block copolymer, Mitsuno et al., which is drawn to thermoplastic propylene composition comprising glass fiber, disclose the use of ethylene-propylene block copolymer which has pentad isotactic

index of 97% or greater in order to produce composition with high heat resistance, stiffness, and scratch resistance (col.6, lines 30-36).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use ethylene-propylene block copolymer in the long glass fiber reinforced resin material of Sobajima et al. in order to produce material with high impact resistance, heat resistance, stiffness, and scratch resistance, and thereby arrive at the claimed invention.

9. Claims 1-2, 5-7, and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshimitsu et al. (U.S. 5,792,527) in view of Mitsuno et al. (U.S. 5,409,991) and Yoshino (U.S. 5,514,745).

Yoshimitsu et al. disclose long glass fiber filler reinforced resin material for injection molding comprising 15-50% long glass fiber coated with silane coupling agent, polypropylene matrix resin with melt flow rate measured according to JIS K2710 at 230 ^{0}C and 2.16 kg of greater than 10 g/10 min, preferably 30-100 g/10 min, and maleic anhydride modified polypropylene. The material is used to form rod-shaped, i.e. tubular-shaped, pellets which are 10-30 mm long and comprise the glass fibers in longitudinal direction (col.2, lines 10-21, 28, and 34-45, col.2, line 61-col.3, line 2, col.4, lines 1-2, col.7, line 54-col.8, line 4, col.8, lines 8-25, col.9, lines 37-40, col.10, lines 1-7, and col.11, lines 8-9).

The difference between Yoshimitsu et al. and the present claimed invention is the requirement in the claims of (a) pentad isotactic index of polypropylene and (b) ethylene-propylene block copolymer.

With respect to difference (a), on the one hand, given that Yoshimitsu et al. disclose crystalline propylene polymer identical to that presently claimed and given that crystalline polymers are well known to possess high pentad isotactic index, it would have been natural for one of ordinary skill in the art to infer that the propylene polymer intrinsically possesses pentad isotactic index as presently claimed.

On the other hand, Mitsuno et al., which is drawn to thermoplastic propylene composition comprising glass fiber, disclose the use of propylene resin which has pentad isotactic index greater than 97% in order to produce composition with high heat resistance, stiffness, and scratch resistance (col.6, lines 30-36).

In light of the motivation for using propylene polymer with specific pentad isotactic index disclosed by Mitsuno et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such propylene polymer in the long glass fiber reinforced resin material of Yoshimitsu et al. in order to produce material with high heat resistance, stiffness, and scratch resistance, and thereby arrive at the claimed invention.

With respect to difference (b), Yoshino, which is drawn to long glass fiber reinforced polypropylene composition, disclose the use of ethylene-propylene block copolymer in order to produce molded article with high impact resistance (col.7, lines 21-24).

Although there is no explicit disclosure of the pentad isotactic index of the block copolymer, Mitsuno et al. disclose the use of ethylene-propylene block copolymer which has pentad isotactic index of 97% or greater in order to produce composition with high heat resistance, stiffness, and scratch resistance (col.6, lines 30-36).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use ethylene-propylene block copolymer in the long glass fiber reinforced resin material of Yoshimitsu et al. in order to produce material with high impact resistance, heat resistance, stiffness, and scratch resistance, and thereby arrive at the claimed invention.

10. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshimitsu et al. in view of Mitsuno et al. and Yoshino as applied to claims 1-2, 5-7, and 10-12 above, and further in view of Sobajima et al. (U.S. 5,484,835).

The difference between Yoshimitsu et al. in view of Mitsuno et al. and Yoshino and the present claimed invention is the requirement in the claims of treating glass fibers with coupling agent.

Sobajima et al. disclose treating glass fibers with silane coupling agent, in order to improve the heat resistance, strength, and anti-warping properties of the resulting molding material (col.2, lines 46-55).

In light of the motivation for treating glass fibers with coupling agent disclosed by Sobajima et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to treat the glass fibers in Yoshimitsu et al. in order to improve the heat resistance, strength, and anti-warping properties of the resulting molded article, and thereby arrive at the claimed invention.

11. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 98/16359 in view of Mitsuno et al. (U.S. 5,409,991), Sobajima et al. (U.S. 5,484,835), and Yoshino (U.S. 5,514,745).

WO 98/16359 disclose glass fiber filler reinforced resin material for injection molding which comprises 30-90% polypropylene which has melt flow rate of 5-500 g/10 min at 230 ^{0}C and 2.16 kg, 10-70% glass fiber, and polypropylene grafted with maleic anhydride. The material forms a composite in the form of 10-30 mm rod-shaped pellet wherein the glass fiber is aligned longitudinal direction of the pellet (abstract, col.2, lines 3-10, col.4, lines 16-20, col.4, line 36-col.5, line 3, col.6, lines 2-16, and col.7, lines 6-9 and 20).

The difference between WO 98/16359 and the present claimed invention is the requirement in the claims of (a) pentad isotactic index of polypropylene, (b) length of glass fiber, (c) treating glass fiber with coupling agent, and (d) ethylene-propylene block copolymer.

With respect to difference (a), Mitsuno et al., which is drawn to thermoplastic propylene composition comprising glass fiber, disclose the use of propylene resin which has pentad isotactic index greater than 97% in order to produce composition with high heat resistance, stiffness, and scratch resistance (col.6, lines 30-36).

With respect to difference (b), Sobajima et al., which is drawn to thermoplastic propylene composition comprising glass fiber, disclose the use of long glass fibers and further disclose that if the glass fibers are too short, the resulting molding material is poor in heat resistance and anti-warping properties (col.2, lines 35-41).

In light of the motivation for using polypropylene with specific pentad isotactic index disclosed by Mitsuno et al. as described above and further in view of the motivation for using

long glass fibers disclosed by Sobajima et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such polypropylene and glass fibers in the composition of WO 98/16359 in order to produce composition with good heat resistance and anti-warping properties and as well as good stiffness and scratch resistance, and thereby arrive at the claimed invention.

With respect to difference (c), Sobajima et al. disclose treating glass fibers with silane coupling agent, in order to improve the heat resistance, strength, and anti-warping properties of the resulting molding material (col.2, lines 46-55).

In light of the motivation for treating glass fibers with coupling agent disclosed by Sobajima et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to treat the glass fibers in WO 98/16359 in order to improve the heat resistance, strength, and anti-warping properties of the resulting molded article, and thereby arrive at the claimed invention.

With respect to difference (d), Yoshino, which is drawn to long glass fiber reinforced polypropylene composition, disclose the use of ethylene-propylene block copolymer in order to produce molded article with high impact resistance (col.7, lines 21-24).

Although there is no explicit disclosure of the pentad isotactic index of the block copolymer, Mitsuno et al. disclose the use of ethylene-propylene block copolymer which has pentad isotactic index of 97% or greater in order to produce composition with high heat resistance, stiffness, and scratch resistance (col.6, lines 30-36).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use ethylene-propylene block copolymer in the glass fiber reinforced resin material of WO

98/16359 in order to produce material with high impact resistance, heat resistance, stiffness, and scratch resistance, and thereby arrive at the claimed invention.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Okayama et al. (U.S. 6,300,415) disclose pentad isotactic index for crystalline polypropylene.

Nishida et al. (U.S. 5,571,866) disclose polypropylene with melt flow rate of 0.01-250 g/10 min and long glass fiber coated with coupling agent, however, there is no disclosure of pentad isotactic index of the polypropylene or affinity providing component as presently claimed.

Jacoby et al. (U.S. 5,916,953) disclose long glass filled polyolefin composition comprising polypropylene with pentad isotactic index of greater than 95%, however, the melt flow rate of the polypropylene falls outside the scope of the present claims.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 703-305-0208. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 703-306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Callie E. Shosho
Examiner
Art Unit 1714

Callie Shosho
5/22/02